What is claimed is:

Sub a2

1. A method of defeating copy protection signals in one or more selected video lines of a video signal being supplied to a VCR and/or TV set, wherein the copy protection signals include sync and/or pseudo sync and AGC pulses, with the AGC pulses having a given small position separation, including zero separation, from the sync/pseudo sync pulses, comprising:

providing the AGC pulses with the leading edge thereof having the small position separation from the trailing edge of respective sync/pseudo sync pulses wherein the small position separation maintains the copy protection effect; and

shifting the relative position of either the leading edge of the AGC pulses or the trailing edge of the respective sync/pseudo sync pulses with respect to each other to provide a further position separation therebetween sufficient to reduce the effects of the copy protection signals in the VCR and/or TV set and allow the recording of a viewable copy.

2. The method of claim 1 including:

delaying the leading edge of the AGC pulses relative to the trailing edge of the respective sync/pseudo sync pulses by a time period commensurate with said further position separation.

3. The method of claim 2 wherein the delay is about 1.0 to about 2.5 microseconds depending upon the amount of the small position separation, and provides said further position separation of about 1.5 or more microseconds.

4. The method of claim 1 including:

advancing the trailing edge of the sync/pseudo sync pulses relative to the leading edge of the respective AGC pulses by a time period commensurate with said further position separation.

5. The method of claim 4 wherein the advancement is about 1.0 to about 2.5 microseconds depending upon the amount of the small position separation, and provides said further position separation of about 1.5 or more microseconds.

6. The method of claim 1 including:

delaying the AGC pulses by about 0.5 to about 1.5 microseconds relative to respective sync/pseudo sync pulses, while advancing the trailing edge of the sync/pseudo sync pulses about 0.5 to about 1.5 microseconds relative to the delayed respective AGC pulses.

7. The method of claim 1 including:

narrowing the durations of the sync/pseudo sync pulses and/or the AGC pulses in combination with the shifting of the relative positions of the sync/pseudo sync and AGC pulses.

8. The method of claim 1 wherein the video level of said further position separation is at a video level in the region of about blanking level.

9. The method of claim 1 including:

delaying the AGC pulse relative to the sync/pseudo sync pulse to provide said further position separation that almost defeats the copy protection signals; and

narrowing the AGC pulse an amount sufficient to reduce the effects of the copy protection signals.

10. The method of claim 1 including:

advancing the sync/pseudo sync pulse's trailing edge to provide a narrowed sync/pseudo sync signal;

delaying the AGC pulse's leading edge to provide a narrowed AGC pulse; and

wherein the resulting further position separation between the sync/pseudo sync pulses and respective AGC pulses is sufficient to reduce the effects of the copy protection signals.

11. The method of claim 1 including:

delaying the position of the AGC pulse;

advancing the sync/pseudo sync pulse's trailing edge to narrow the sync/pseudo sync pulse; and

wherein the resulting further position separation between the sync/pseudo sync pulses and respective AGC pulses is sufficient to reduce the effects of the copy protection signals.

12. The method of claim 1 including:

removing all or sufficient portions of the copy protection signals of sync/pseudo sync and AGC pulses;

inserting new sync/pseudo sync pulses in advance of the position of the original sync/pseudo sync pulses that are removed; and

inserting new AGC pulses in delayed relation to the position of the original AGC pulses;

thereby providing said further position separation sufficient to reduce the effects of the copy protection signals.

13. The method of claim 1 including:

providing the AGC pulses with the small position separation with respect to respective normal sync pulses; and

position modulating the AGC pulses while maintaining said further position separation between the AGC and normal sync pulses which reduces the effects of the copy protection signals.

14. The method of claim 1 wherein the step of shifting includes:

reversing the order of at least portions of the sync/pseudo sync pulses and respective AGC pulses while maintaining said further position separation.

15. The method of claim 1 wherein the step of shifting includes:

phase shifting at least portions of the sync/pseudo sync and AGC pulses to about 180 degrees.

16. Apparatus for defeating copy protection signals in one or more selected video lines of a video signal being supplied to a VCR and/or TV set, wherein the copy protection signals include sync and/or pseudo sync pulses and AGC pulses, with the AGC pulses having a given small position separation, including zero separation, from the sync and/or pseudo sync pulses, comprising:

input means for supplying the copy protected video signal with the AGC pulses and the respective sync/pseudo sync pulses with the given small position separation which maintains the copy protection effect;

timing circuitry for providing timing signals indicative of one or more video lines containing sync/pseudo sync and AGC pulses; and

circuit means responsive to the timing circuitry for shifting the relative edges and/or positions of the AGC pulses and of the sync/pseudo sync pulses with respect to each other so as to provide a further position separation there between which is of sufficient separation to reduce or defeat the effects of the copy protection signals in the VCR and/or TV set and allow the recording of a viewable copy of the video signal.

17. The apparatus of claim 16 wherein:

the timing circuitry includes sync separating means for providing selected sync signals; and

a timing circuit responsive to the sync separating means for providing the timing signals;

the circuit means include delay means for delaying the copy protected video signal; and

a clipper circuit responsive to the delay means for supplying delayed AGC pulses; and

the apparatus including switching means for inserting the delayed AGC pulses into the copy protected video signal in response to the timing signals.

18. The apparatus of claim 16 wherein:

the timing circuitry includes sync separating means for providing selected sync signals; and

a timing circuit responsive to the sync separating means for providing the timing signals;

the circuit means include multivibrator means responsive to the sync separating means for providing a defeat signal which causes said further position separation; and

logic means responsive to the timing circuit and multivibrator means for providing a control signal indicative of the presence of the copy protection signals and of said further position separation; and

switching means receiving the copy protected video signal for inserting said defeat signal into the video signal in response to the control signal, to modify the widths of the sync/pseudo sync pulses and AGC pulses.

19. The apparatus of claim 18 including:

a chroma filter receiving the copy protected video signal for reinserting color burst into the unprotected video signal via the switching means in response to the control signal, during the modifying of the pulses' widths.

20. The apparatus of claim 16 wherein the copy protection signals include sync/pseudo sync and AGC pulse pairs, wherein:

the timing circuitry includes control means for supplying write and read signals; and

the circuit means include memory means receiving the copy protected video signal in response to the write signal, wherein the stored copy protected video signal is recovered from the memory means in reverse order in response to the read signal to provide reversed pulse pairs having said small position separation between the sync/pseudo sync and AGC pulses which reduces the effect of the copy protection signals.

21. The apparatus of claim 20 wherein the copy protected video signal reversing process is implemented for all or selected portions of the sync/pseudo sync and/or AGC pulses.

22. The apparatus of claim 16 wherein:

the timing circuitry includes a source of control voltage;

the circuit means includes inverting amplifier/phase shifter means receiving the copy protected video signal for providing inverted/phase shifted sync/pseudo sync and AGC signals; and

dissolve amplifier means responsive to the control voltage for replacing the original sync/pseudo sync and AGC pulses with the inverted/phase shifted sync/pseudo sync and AGC pulses.

23. The apparatus of claim 22 including:

a second control voltage;

level shifter/attenuator means receiving the output of the dissolve amplifier means and responsive to the second control voltage for level shifting/attenuating the inverted/phase shifted sync/pseudo sync and AGC pulses.

24. A method of providing copy protection signals in a video signal employing sync or pseudo sync pulses followed by AGC pulses, comprising:

providing the AGC pulses with the leading edges thereof generally coincident with the trailing edges of respective sync/pseudo sync pulses thereby having essentially small to zero position separation consistent with maintaining copy protection;

dynamically increasing over time the position separation between the sync/pseudo sync pulses and the respective AGC pulses so as to reduce or defeat the effects of the copy protection signals; and

dynamically decreasing over time the position separation between the sync/pseudo sync pulses and the respective AGC pulses to return to the essentially small to zero position separation that maintains copy protection.

25. The method of claim 24 including:

dynamically varying the position separation between at least one sync/pseudo sync and at least one respective AGC pulse from the essentially small to zero position separation to a position separation of about 1.5 to about 5.0 microseconds.

26. The method of claim 24 including:

dynamically varying the position separation by dynamically varying the advancement of the trailing edge of the sync/pseudo sync pulses with respect to the respective AGC pulses.

27. The method of claim 24 including:

dynamically varying the position separation by dynamically varying the delay of the leading edge of the AGC pulses with respect to the respective sync/pseudo sync pulses.

28. The method of claim 24 including:

dynamically varying the position separation by dynamically varying the advancement of the sync/pseudo sync pulses while dynamically varying oppositely the delay of the AGC pulses.

29. The method of claim 24 including:

dynamically varying the position separation by dynamically varying the pulse width of the AGC pulses and/or of the sync/pseudo sync pulses.

30. The method of claim 24 including:

dynamically narrowing the pulse width of the AGC pulses and/or the sync/pseudo sync pulses from 100 percent to about 50 percent and back to 100 percent.

31. Apparatus for providing copy protection signals in a video signal employing sync and pseudo sync pulses followed by AGC pulses, comprising:

timing circuitry for providing timing signals indicative of video lines which are to contain the copy protection signals, and of the location in the video lines of selected copy protection signals;

circuit means responsive to the timing circuitry for generating modulated inverted pseudo sync pulses, and for generating AGC pulses that vary in width and position delay in response to the modulated inverted pseudo sync pulses; and

summing means receiving the video signal and responsive to the circuit means and the timing circuitry for adding to the video signal a dynamic copy protection signal formed of position modulated AGC pulses relative to the pseudo sync pulses.

32. The apparatus of claim 31 wherein:

the timing circuitry includes sync separating means for providing a horizontal rate (H rate) signal and a frame rate signal;

means responsive to the H rate signal for providing a first signal which defines a positive pulse duration of an H rate related signal;

multivibrator means responsive to the H rate signal for providing a second signal indicative of the location of sync pulses in a video line;

means responsive to the H rate and frame rate signals for providing a third signal indicative of the video lines which are to contain the copy protection signals; and

logic means responsive to the first, second and third signals for providing inverted pseudo sync pulses on selected video lines;

the circuit means include one shot timer circuit means responsive to control voltages for providing said AGC pulses that are varying in width and in position delay; and

the summing means include summing amplifier means receiving the video signal and responsive to said inverted pseudo sync pulses and said width and position delay varying AGC pulses, for providing the position modulated AGC pulses relative to the pseudo sync pulses, resulting in a dynamically varying copy protected video signal.

33. The apparatus of claim 32 wherein:

said means for providing the first signal include an H locked oscillator;

said means for providing the third signal include a memory means responsive to a line counter;

said one shot timer circuit means include a pair of voltage controlled one shot circuits; and

said summing amplifier means include first and second summing amplifiers responsive to said width and position delay varying AGC pulses and said inverted pseudo sync pulses, respectively.

34. The apparatus of claim 31 wherein:

said circuit means generate the AGC pulses as raised back porch AGC pulses; and

said circuit means dynamically position and/or width modulate the raised back porch AGC pulses over time from minimum to maximum separation and back to minimum separation, with respect to the sync/pseudo sync pulses.

35. The apparatus of claim 31 wherein:

the copy protection signals include sync, pseudo sync, AGC and/or raised back porch AGC pulses; and

said circuit means cause dynamic position, pulse width and/or gap width modulation of the pulses over time from maximum to minimum gap separation.

36. A method of providing copy protection signals in a video signal and for defeating the copy protection signals when desired, wherein the copy protection signals include sync and/or pseudo sync pulses and AGC pulses, comprising:

providing the AGC pulses with the leading edges thereof coincident with, or separated by less than 1.0 microsecond from, the trailing edges of respective sync/pseudo sync pulses to provide the copy protection signals; and

position separating relative

to time the AGC pulses and/or the respective sync/pseudo sync pulses an amount of 1.5 or more microseconds sufficient to defeat the copy protection effect of the copy protection signals.